Wing Flex Design Details
Jeff Andresen 5/22/2002

This document has design information for the Kapton Wing Flex to be fabricated by Cordova quote number 020517-002 and Fermilab P.O. number PRN19833. This is the prototype design with 10 to 20 tested Wing Flex circuits to be delivered to Fermilab with a 3 week delivery time. Please send any circuits that fail the test as they can be used for mechanical testing.

This is a two trace layer Kapton flex circuit with Kapton used for the top and bottom solder mask. The traces are 1 oz. copper with a 4 mil minimum width and a 4 mil minimum clearance. A support piece of G10 (not FR4) is to be mounted to the back bottom of the flex circuit. The G10 will be 2.26" x 1.50" x 0.020". The mounting area is shown on the *.AST Gerber file. This support is for the lower 1.50" of the flex design which includes the wire bond pad area. The G10 will be supplied by Fermilab and shipped soon.

This is a controlled impedance design. The 4 mil traces on the bottom layer are side by side differential pairs and are to have a 75 ohm differential impedance referenced to the GND copper above the traces on the top layer.

The pads on the left edge of the design are wire bond pads. These pads should have 150 micro inches of nickel with 7 to 10 micro inches of gold over the nickel for aluminum ultrasonic wedge bonding.

The following is the board stackup with the Gerber file extension.

Layer 1, top Kapton layer,	*.SMT	//
Layer 2, top metal layer, trace layer 1,	*.TOP	----------
Layer 3, bottom metal layer, trace layer 2	*.BOT	----------
Layer 4, bottom Kapton layer	*.SMB	//
Layer 5, G10 support area	*.AST	G10 is 2.26" x 1.50" x 0.020"

There are the following additional files.

*.SST Top silkscreen layer for documentation use as text is too small for use on board.
*.TAP Drill tape files
*.ASC Netlist file from the schematic.
COMPS.TXT Components on board
CONN.TXT connections on board
*.DRD Drill drawing Gerber file
*.DTS Drill tape summary
*.LIS post processing report including apertures
*.GTD GERBTOOL design file.

Please contact me if there are any technical questions and deliver the flex circuits to me.

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